GRUMMAN plane news

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Coming down to earth. Engineers Paul Kovach and George Nelson (R) applied some of their space technology talent in helping to design and develop electronic fire hose nozzle, unveiled last month by Grumman Aerospace. (Photo by Fred Annette)

See big assist for firefighters in electronic fire hose nozzle

The test conditions weren't ideal. It was cold at Bethpage on December 18 when two engineers from Grumman Aerospace demonstrated an electronically controlled fire hose nozzle, designed by Advanced Development to help in the fight against fires. And the next day at a demonstration in New York City, conditions were no better . . . it was still cold. Ideal conditions might have included freezing rain, smoke, fire, sirens, and, at times, much noise and some confusion.

"Ideal" because much of the time the nation's firemen—paid and volunteer—have to operate under such conditions. And, perhaps, there's the rub. Although the men are usually equal to the task, their equipment isn't. Take the many fire hoses that slither out from a pumper truck during a house or apartment fire, for instance. Each pumper truck requires a full-time operator who must monitor all hoses leading from the vehicle, must start and stop the flow of water to the hoses, and make any required adjustments to the water flow depending on length, elevation, depression, or bends in the hoses.

He must also be constantly on the alert to correct any malfunction in the pumper truck—a loss in water flow in any of the hoses could not only impede bringing the fire under control, it could also endanger the lives of firemen battling the flames. And hoses, once pressurized, remain stiff and difficult to maneuver during fire fighting. A single leak in any of the hoses would be enough to drain the entire system.

Sometimes, too, the nozzleman and pumper operator have to communicate by shouts and hand signals . . . and you might imagine how easily that could break down in the noise and confusion that accompany some conflagrations.

About two years ago, Public Technology, Inc. — a non-profit organization supported by city, state, and county organizations to channel space-age technology into solving earthbound problems—came to Grumman for help to change that situation around. The electronically controlled fire hose nozzle unveiled a couple of weeks ago is the first step in the process.

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Grumman named by NASA for $19.5 million contract

It was a good way to close out the old year . . . . and a happening that lent promise to the new.

On December 13, the National Aeronautics and Space Administration announced that it had selected Grumman Aerospace for a $19.5 million project to modify two Gulfstream II aircraft for use as crew trainers for the Space Shuttle Orbiter.

Grumman had been in competition for the Shuttle Training Aircraft contract for nearly two years, with the original list of four areospace firms pared to only two — Grumman and Lockheed—in the summer of 1972.

Under terms of the contract, said STA program director Bill Fehrs, Grumman will modify GII aircraft to simulate the Orbiter cockpit, visual cues, handling qualities, and duplicate the Orbiter's atmospheric descent trajectory from approximately 35,000 feet altitude as it returns from earth orbit to landing on a runway. NASA expects the training aircraft to be delivered approximately 2½ years after the contract is signed. The production aircraft, says Fehrs, will be purchased on a fixed-price basis, while the required modifications will be under a cost-plus-f i x e d-fee arrangement. NASA's Johnson Space Center at Houston, Tex., will manage the contract work.

Since the Gulfstream II fanjet, which weighs 62,000 pounds, is going to be a flight trainer for the Orbiter, which will weigh approximately 250,-000 pounds, the performance of the larger vehicle must be simulated in a number of respects.

"Because of its size and design, the Gulfstream II moves through the skies with much lesss resistance — drag — than the Orbiter will," says Bill Gentzlinger, STA program manager. "The controls of the Gulfstream II must be modified so that it will fly like, and have the feel of, the much bigger, heavier delta-wing Orbiter. So we have to employ 'artificial' means — inflight thrust reversers on the engines and speed brakes—to slow down the Shuttle Training Aircraft (GII) to simulate the drag or resistance the Orbiter will encounter as it returns from earth orbit and descends from 35,000 feet to touchdown. In that way," Gentzlinger points out, "STA flight crews will get the 'feel' of the Orbiter's flight controls and handling qualities long before they ever step into the real thing."

And Gentzlinger noted that the GII has plenty of growth potential as a trainer so that it can accommodate any design changes to the Orbiter which may have further effects on the craft's handling qualities.

Other structural modifications to the GII will include direct lift flaps to simulate the Orbiter's expected attitude and heave (vertical) control, and the installation of side force controls positioned under the wing to simulate expected sidewards movement of the spacecraft.

Inside, there will be a digital fly-by-wire flight control system in the simulated cockpit of the trainer. At the left is the pilot's station; on the right side is the standard Gulfstream II

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Aerospace wins Air Force study

Late Tuesday afternoon, January 8, the Air Force announced that it had awarded Grumman Aerospace and General Dynamics-Fort Worth design study contracts on the EF-111A aircraft—an electronics countermeasures aircraft which could give added protection to strike aircraft operating over heavily fortified radar-controlled defensive positions.

The contract is worth $2.5 million and includes a seven-month study to install the ALQ-99 tactical jamming system (currently in use in the Grumman EA-6B Prowler) in the F-111A. In this Phase I design study, Grumman Aerospace and General Dynamics will work out in specific detail how the structural modification and ECM systems integration would be accomplished.

In Phase II, the Aeronautical Systems Division of the Air Force Systems Command, which manages development and acquisition of aeronautical systems and related support equipment, would select either Grumman or General Dynamics to produce the

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That's a long time ago . . .

The year was 1960: John F. Kennedy was elected President of the United States; Vince Lombardi was beginning to forge a championship team at Green Bay; America was still playing catch-up to Russia's early space exploits—and the nation's first space man, Alan Shepard, wouldn't fly aboard Freedom 7, a Mercury spacecraft, until a year later . . . and, a Navy lieutenant commander named Dan Murphy of VS-33 made a forced landing at Imperial Beach, California, when an engine caught fire aboard the S-2 Tracker he was flying.

Nineteen sixty. That's a long time ago. John Kennedy and Vince Lombardi are gone, each in his own way a part of the American legend. Alan Shepard, following that first flight for America, had to wait another 10 years before he made his second space flight, this time as commander of Apollo 14 during its successful moon mission in 1971. And Dan Murphy? He went on to become Vice Admiral Dan Murphy, Commander of the U.S. Sixth Fleet. For VS-33, 1960 marked the last time it experienced any kind of operational accident—and that includes 74,344 flight hours (as of September 1973), more than 12,500 day and 8,000 night carrier landings, three deployments to the western Pacific, war and peace in Southeast Asia. One helluva record!

In November, VS-33 deployed from the Naval Air Station at San Diego for the western Pacific again, this time aboard the Kitty Hawk as part of what is termed "the first real CV concept deployment." But before they sailed, the men who fly and maintain the Tracker in VS-33 watched as Vice President Ross Mickey presented Cdr. L. G. Perry, former skipper of the Anti-Submarine Warfare group, with a special aviation safety award which saluted the squadron for "unparalleled achievement in carrier aviation safety." Following that, Commander Perry was succeeded as skipper of VS-33 by Cdr. J. L. Kuhn. And Commander Kuhn must be wondering, considering that record—13 years without an accident, "What do you do for an encore?"

Mohawk delivers in peace . . . or war

Last spring, the Army Corps of Engineers discovered that the Grumman Mohawk and its side-looking airborne radar system could accomplish in hours a task it had taken years for engineers using conventional means. But the Mohawk isn't putting anybody out of work . . . instead, the OV-1's surveillance system is providing Army engineers and scientists a closer look at the world we live in — uncluttered by its natural adornment of trees, undergrowth, cloud cover, etc., and unaffected by rain, sleet, or snow.

According to the Fort Hauchuca SCOUT, Army engineers were asked to assist during the rampaging floods on the Mississippi last spring, and one of their tasks was to measure the amount of water at flood crest. A week of bad weather prevented aerial photographs, so the engineers tried a new method—SLAR—so they could be assured of a precise record of the limits of flooding.

Normally, corps surveyors plan to spend up to five years after a major flood searching remote areas for high water marks and then calculating amount of flood water and measuring its boundaries at flood crest. Side-looking airborne radar—because of its ability to "see" a continuous stretch of river along the aircraft's flight path at the critical moments of flood crest right through existing rain, snow, heavy clouds . . . even at night—allowed the engineers to collect enough raw information in just a few hours to replace those years of conventional field surveys.

Geologists in other Corps of Engineers offices have already applied the side-looking radar to a variety of geological and engineering problems—geologic structures, fault systems, drainage patterns, soil types, and land-use planning—with results far exceeding expectations.

Using the Mohawk and SLAR for such peaceful exploits isn't a recent discovery, however. Some years ago, Grumman Aerospace engineers found that SLAR imagery could be of immeasurable assistance in the detection of important geologic features . . . and for the past few years, Grumman Ecosystems has been making aerial surveys, both in this country and in several foreign nations, using SLAR and other equipments for oil and mineral exploration, pollution control, and other applications, as well.

Gone . . . but not forgotten

Though the days of wine and roses are over, at least for awhile, memories of those exciting days when American astronauts journeyed to the moon were revived a couple of weeks ago. Full-scale mockups of the Grumman-NASA Lunar Module and the North American Command Module had been housed in Plant 4 during the moon landings for use by CBS in its simulated coverage of the events. They were purchased from the broadcasting company by a private organization, Friends of the Nassau County Museum. Here, commemorating the purchase, are Nassau County Executive Ralph Caso, Vice President Gerry Kessler of the Bank of North America, also president of the "Friends" group, Vice President Tom Kelly, director of Space Programs for Grumman Aerospace, and Vice President Robert Chandler of CBS.

The Lunar Module will be moved to the Nassau County storage area at Sands Point where it will be maintained until it is enshrined in the Nassau County Air and Space Museum, scheduled to open in 1976 as part of the Mitchell Park complex. The county also hopes to acquire LM test articles for installation—in surroundings resembling the LM Clean Room at Plant 5—at the space museum.

LAMPS burning brightly as proposal deadline nears

The lights have been burning brightly for the proposal crew on the LAMPS Mark III System Prime Contract since mid-November. And after a much welcomed holiday recess, the Grumman Aerospace team is once again burning its own energy to meet the January 16 deadline.

LAMPS (Light Airborne Multi-Purpose Systems) is a Navy project involving a helicopter assigned to a naval destroyer to assist the ship by becoming its long-range eyes, ears, and legs. Existing destroyer equipment, such as radar and sonar, detect the enemy and record its bearings. The destroyer commanding officer, on the recommendation of the Combat Information Center (CIC) Evaluator, sends out the LAMPS 3-man helicopter to locate the target.

Following the bearings given by the CIC officer, the helicopter drops sono-buoys in the water. The sono-buoys send signals to the 'coper, which in turn sends the sonar signals back to the destroyer's CIC acoustic processor. The acoustics processor then enters the data bits into the central computer onboard the ship for integration into the ship's existing equipment. When the helicopter locates the enemy ship, it drops a ring of sono-buoys around the area, and awaits instructions whether to attack or continue tracking from the ship's captain. The 'copter which can operate day or night, can cover a range of up to 100 miles from the mother ship, and is heavily armed with torpedoes and other weapons.

Heavy competition

Fourteen companies received bid packages for the multi-million dollar Navy contract. The LAMPS Mark III calls for total system responsibility—from buying to integrating the systems aboard the destroyer and helicopter. In short, it is a systems management contract.

The proposal is for only one part of the three-phase LAMPS program. Sixty days after the submittal deadline, the Navy will announce the winner. Phase one—feasibility—will last 33 months, climaxed by a "fly-off" demonstration aboard a destroyer utilizing the helicopter. Then the Navy will signal whether or not to go ahead with phases two and three—pre-production and production.

The company that wins will work closely with the Naval Air Development Center (NADC) in Warminister, Pa., which has been responsible for the primary design development of the LAMPS project.

According to Bob Bonner, Grumman's program manager of LAMPS, the contractor will work together with NADC in the beginning stages and eventually take over the entire development of the project. Should Grumman win, this task would center most of the activity in Warminister, with a small crew in Washington, D. C., and a support team at Bethpage. "We have experience in this field," says Bonner, "since we accomplished a similar task at Pt. Mugu with the F-14 program."

The LAMPS program would be "unique for Grumman because it would be the first time we would be responsible for equipment in someone else's airframe," says Bonner. "But Grumman has been training for this job for the past ten years. We have proven our capabilities in systems management operations and systems integration. With this new business, we can apply our technology to a new market."

Real challenge

According to Bonner, the real challenge lies in working with the three naval systems commands: "If we win the proposoal, we will not only be involved with NAVAIR (Naval Air Systems), but NAVELEX (Naval Electronics Systems), and NAVSHIPS (Naval Ships Systems). That makes three commands to coordinate in addition to NADC in the beginning stages."

The Mark III system is the second generation in the LAMPS program. The interim Mark I system utilized "off-the-shelf" electronics, an "in-inventory" helicopter and available destroyers to satisfy a critical operational need until the Mark III could be designed, developed and deployed.

The new LAMPS III will have many missions: ASW (anti-submarine warfare); ASMD (anti-ship missile defense) against enemy planes, ships, submarine missiles; medical evacuation; vertical replenishment of supplies; logistics support; transfer of mail and personnel.

Nearing the end

Now nearing the end of the rigorous schedule of the 60-day proposal preparation, the Grumman LAMPS team is wrapping up the entire package. The days have been long for the staff, which involved a hundred people at its peak, and Program Director Julie Cohen, Ralph Aurora of Business Development, and Bonner have nothing but praise for the Grumman crew, from the design, management, and costing staffs to Presentation Services.

Since they worked 7-day weeks, according to Bonner, "it was hard to tell when one week passed into another. The only way I could tell it was the beginning of another week was that the comics were in color on Sundays."

Side force controls, shown on this STA model, will be positioned under GII wings.

Grumman gets $19.5 million to develop Shuttle trainer

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cockpit for the instructor pilot. Trainees will be the actual crews who are programmed to fly the Orbiter. Their training flights will include subsonic flight from 35,000 feet altitude to landing.

Its good fuel capacity and excellent climbing rate also qualify the GII for its STA mission cycles, said Gentzlinger. NASA is prescribing nine Orbiter training mission cycles per flight, three cycles per hour. Gentzlinger notes that "The Gulfstream II is perfectly capable of nine training cycles per hour."

Sperry Flight Systems Division-Phoenix will provide the electronics simulation package.

According to Fehrs, the entire STA program staff will be situated on the second floor of Plant 4 to provide the shortest lines of communication possible and easy access to the aircraft being modified. Among the other managers assigned to the project are Ed Clark, Engineering, John Barnes, Manufacturing, Frank Higgins, Flight Acceptance, John Gelety, Procurement and Andy Breunig, Quality Assurance. Actual structural modifications on the GII won't begin at Plant 4 until some time next fall.

"NASA will also have ground-based simulators, of course, based on the same principle as the ones they had for the Lunar Module," said Gentzlinger. "But our job here in Plant 4 is to introduce modifications to the Gulfstream to permit the Orbiter flight crews to go through preliminary training sufficiently in advance of the first horizontal flight of the Shuttle Orbiter. And now with the recent NASA contract award, we'll be going full tilt to complete our end of the bargain."

Before you go a 'paddlin'

If canoeing is your bag, whether it's shooting rapids, poling through the bayou country, canoe-camping with the family, or fishing the nation's rivers, it's nearing that time. At least you can start thinking about it. There's a new 16-page color brochure about Grumman Boats just off the press—and it's free. The booklet can tell you a lot about Grumman canoes, both double enders and square sterns, as well as its exclusive Sportscanoe.

And there's a two-page spread that may aid you in selecting a canoe to best suit your own special needs. There is a chart that illustrates length and weight factors, people and gear capacities, and special construction features to be considered for certain canoeing activities.

If you're thinking of spring . . . get moving. Send for your new, free brochure. Write to El Nelson, Grumman Boats, Marathon, N. Y., 13803. Tell him Plane News sent you.

Reflections, reflections, reflections

So Santa left you a new 10-speed bike under the tree. That's terrific . . . great for the legs. But before you start wheeling it around town, make sure it is properly equipped, cautions Dick Sanchez, who heads Industrial Safety for Grumman Aerospace. Sanchez reminds all riders or purchasers of new bikes that they should carry 10 — yes, 10 — reflectors in order for them to conform to New York State safety regulations. Beginning January 1, new bikes sold in New York should carry a white (clear) reflector in front, a red one in back, two red or white ones on the rear sides, two amber or white ones on the front sides, and two on each pedal. That's what's called a highly visible profile.

F-14 finishes 1973 with final flourish

With 1973 drawing to a close and the emphasis shifting to the upcoming new year, December, it would seem, should have been a relatively quiet, uneventful month. For some, perhaps, but not the F-14. As star of just about any show it performs in, the Tomcat's limelight burned brilliantly right up to year's end, without any indications of dimming in the coming year, either.

A round-up of the F-14's December achievements includes:

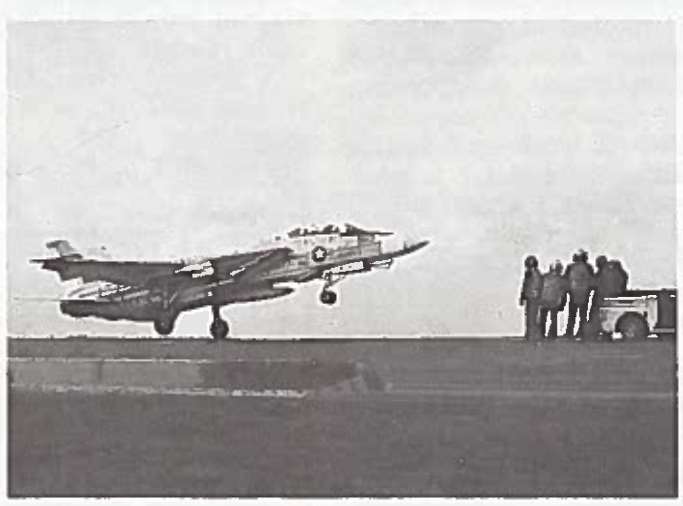
- The succesful completion of the shipboard Board of Inspection and Survey trials — the carrier aircraft performance trials on the USS Forrestal.
- Entering the downhill stretch — after numerous shore- and sea-based milestones — of the extensive BIS trials now under way at the Naval Air Test Center, Patuxent River, Md.
- Stepping up production at Calverton to "catch up" and resume "on target" deliveries by the end of the year.
- Demonstrating the Tomcat's unique and sophisticated capabilities to top Iranian officials during an "across the board" tour of U.S. defense systems and installations.

Actually, the Tomcat's succession of year-end performances began on Nov. 26 when three planes (Numbers 14, 15 and 41) went aboard the Forrestal (photos on page 4) for sea trials which they completed on Dec. 2. The F-14 had made carrier test landings before, but this time it demonstrated its capabilities to perform carrier-based fighter missions in all varieties of situations, including six Phoenix missile air-defense configurations. All-Navy flight crews from Patuxent River conducted the trials which included 74 catapult shots, 73 arrested landings and approximately 150 touch-and-go landings.

The results? "Highly successful," says Bill Rathke, F-14A program manager who was Grumman's team leader on the Forrestal. The general consensus from those who flew the planes was that the "F-14 handles like an A-6 on a carrier." "And that's a compliment," Rathke adds, "since the A-6 has a well-known safety record of only one carrier incident in more than 100,000 landings."

On board the Forrestal to witness a part of the trials were Grumman Corporation President Jack Bierwirth, Grumman Aerospace Senior Vice President for Advanced Systems Technology Grant Hedrick, and the Grumman Aerospace Vice President and F-14 Program Director Mike Pelehach.

In the December BIS report relating to the F-14A's sea trials on the Forrestal, some of the plane's outstanding features as a carrier-based fighter were



BIS, visitors, production are highlights

cited, including: direct lift control; low fuel consumption per pass; capability to catapult launch utilizing the hands-off technique; excellent landing-approach field of view; cockpit comfort provided by the environmental control system during both flight and flight deck operations; the engage/disengage features of the nose wheel steering system; and the capability to refuel without external electrical power.

"The F-14A airplane has demonstrated many outstanding characteristics in the aircraft carrier environment," the report states. "It is anticipated that the launch, approach and arrestment characteristics of the F-14A will result in an excellent safety record in the shipboard environment. The high maximum arrestment fuel-weight and landing-pattern-fuel consumption will permit expeditious completion of carrier qualifications of fleet pilots."

At Pax River, where the F-14 has been involved in the shore portions of the BIS trials for most of 1973, work is steadily moving ahead. Pelehach says he hopes the trials will be completed sometime during the first-half of 1974. "The West Coast portions of the trials have already been completed," he points out, "the sea trials have been successful, and things now have to be successfully completed on the East Coast."

During the BIS trials, the Tomcat has performed more than 100 shore-based flights totaling nearly 170 flight hours, including 46 catapult launchings and 13 arrested landings.

Another set of rather spectacular performances occurred during mid-month when a delegation of Iranian officials (photos on page 5) visited Calverton on Dec. 10. The visitors also saw the Tomcat perform at the Naval Air Station, Miramar, Calif., on Dec. 17. The Iranian party, which was the guest of the U.S. Air Force, included General Mohammad Khatami, Commander in Chief of the Imperial Iranian Air Force; Brig. Gen. Abdollah Azarbarzin, deputy chief of staff for operations; Col. Rabi Rabii, deputy to Gen. Azarbarzin; Lt. Col. Mir-Hosseini, aide de camp to Gen. Khatami; Lt. Col. F. Hamzie, air attache of the Imperial Iranian Air Force to the U.S.; and Col. Kirkpatrick, USAF, foreign military liaison officer for the USAF.

At Calverton, Gen. Khatami's party toured the Plant 6, ATS and VAST facilities. Chief test pilot Chuck Sewell narrated a flight demonstration with Don Evans piloting production aircraft Number 50. Included were such maneuvers as an Immelman loop, a knife-edge pass, a low-speed pass a touch-

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Goal for '74: deployment to Enterprise

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and-go with a vertical climb, and landing with less than 2,000 feet of ground roll.

Other highlights of the visit were briefings on the overall F-14 program status by Mike Pelehach and an overview of the introduction of the F-14 to Iran by Tom Brancati, director of Middle East Operations. Talks were given on air crew training by Tony Nargi and on logistics by Bernie Yudin. Also in attendance were Grumman Aerospace Chairman of the Board and President Joe Gavin; Grumman International President Bob Townsend; head of the Navy Foreign Military Sales, Admiral H. Gerhard, and NAVPRO representative Capt. Bob Belter.

At Miramar on Dec. 17, the Navy hosted an air show for the Iranian visitors. Four F-14s were involved, piloted by Cdr. Peter Callaway, commanding officer of VF-124; Capt. Lammoreaux, commodore of Miramar; Cdr. J. W. Taylor, executive officer of VF-2; and Grumman's Chuck Sewell. Gen. Khatami flew in the back seat with Capt. Lammoureaux and Gen. Azarbarzin flew with Cdr. Callaway.

Tom Brancati, who accompanied the visitors during the Calverton and Miramar portions of their tour, reports that a number of other aircraft were also involved in the air show, including F-4s, TA-4Fs and T-38s. "It was a highly successful one hour and 15 minute demonstration," he says, "with a significant amount of aircraft participating from many squadrons." All told, the visitors expressed considerable praise for the Tomcat and its performance.

Back at Calverton, the heat was still on up to the final work week of 1973. But when the final countdown was completed, the production and flight delivery crews at Calverton had accomplished the corporation's F-14 goals for 1973: all F-14s through No. 54 had been sold to the Navy, with the final one, No. 50, accepted on Dec. 21, the last day of the work year. Tomcats. Nos. 5, 55, 56, 57 and 58 had all achieved flight status by year's end. In his year-end message, Grumman Corporation President Jack Bierwirth termed it a "fantastic achievement."

No question about it. The month of December, as far as the F-14 is concerned, was an impressive finale for an already busy year. Mike Pelehach says 1974 promises to be equally impressive. "Now that the plane is back on its production schedule and with the BIS trials heading into the final phase," he says, "Our principal effort for 1974 will be directed toward deployment of the Tomcat to the USS Enterprise which operates on the West Coast. Two squadrons at Miramar—VF-1 and VF-2—will support this effort and will also be assigned to the carrier."

And with that, the Tomcat is off to a running start in the new year.

Grumman team completes F-14 repairs

November 11 began as a routine day during the Board of Inspection and Survey trials at the Naval Air Test Center, Patuxent River, Md. But when a plane crew was ground testing one F-14 (No. 17), the plane went out of control, careened down the runway and rammed into another F-14 (No. 20) parked nearby. Three men were hospitalized and damage to the two planes was reported as "extensive."

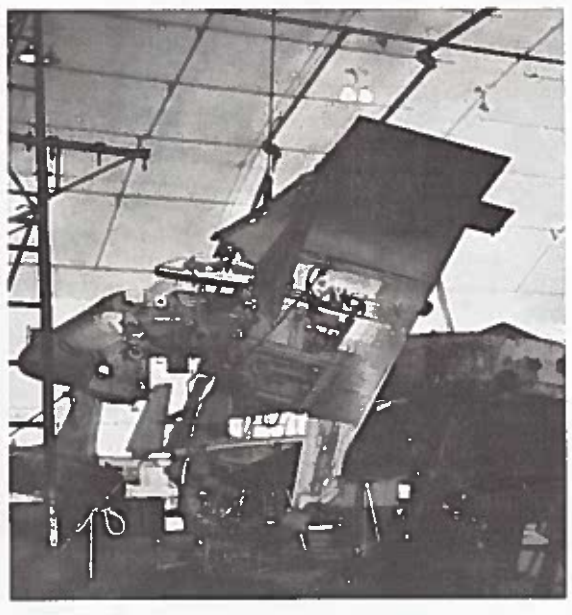
By year's end, one of the planes (No. 20) was repaired and ready for flight. The principal things credited for the success of the fast repair job: teamwork and a rather remarkable aircraft module concept which was designed into the F-14A aircraft.

According to George Thompson of the F-14 Production Manufacturing Department who coordinated the repair team, the damage was done to No. 20's inlet and glove section which is one of the basic F-14A modules. Within a few days after the accident, an associate contractor, Rohr, had supplied a new glove and inlet structural module which was built up with systems in Plant 1, Bethpage, then sent to Pax River.

"In one month, this new unit was installed and in operation on Tomcat No. 20," says Thompson. "Considering the multitude of structural, wiring and plumbing systems involved in the removal of the damaged module section and the installation of the new module and its systems, this task was unprecedented in the aerospace industry."

Thompson attributes the success and speed of the job to the "outstanding work of the repair team at Pax River composed of Grumman people from Pax River, Bethpage and Calverton, and to the superb support received from such departments as Production, Tooling, Inspection, Engineering, Support, Field Service, Contracts and Materials."

The aftermath of the accident was scheduled for early this month when No. 20 was slated to take to the air once more.



Encourage mass transit, car pools to beat gas crisis

Since the last issue of Plane News, many people at Grumman have shown interest in joining car pools and utilizing mass transit. Gus D'Errico, head of Employee Services, reports that over 200 sent in their names for assistance in setting up car pool transportation, and Tom Lashinsky, head of Traffic, received over 270 inquiries about bus and train services. You, too, can join the winning crowd.

"Probably the most economical way to travel to and from work is by joining fellow workers in a car pool," says Vice President Tom Rozzi. "When you send in your name to Gus D'Errico in the Plant 2 ESO office, your name will be sent to the various ESO offices, so that others who wish to join a car pool from your hometown will be able to get in contact with you. Every ESO how has an updated list of car pool enthusiasts—all you have to do is inquire at your local ESO, get names of interested people and you do the rest."

Joining a car pool has its advantages. Besides using up less gasoline, there is less wear-and-tear on your family car; you can discuss current events—rationally, we hope; you get to know your Grumman neighbors; and according to Rozzi, you receive preferred parking space at Grumman.

Another way to fight the gas crunch is to sign up for bus service, says Tom Lahey, staff assistant to Vice Chairman Bill Zarkowsky, who is coordinating the transportation program. The company plans to assist those who wish to cut down on gasoline consumption by making arrangements for three bus runs from various locations in Suffolk County, with fares pro-rated by distance.

Routes proposed

The following bus routes are proposed:

- Smithhaven Mall to Bethpage, with stops at Klein's Shopping Center in Commack and Walt Whitman Mall in Huntington. The bus will then continue to Bethpage where it will drop off riders at their respective plants.
- Southshore Mall to Bethpage, starting at the mall in Bay Shore to the Bethpage plants.
- Commack to Calverton, starting at Klein's Shopping Center in Commack, stopping at various points along Middle Country Rd., and continuing to Calverton plants for drop-off.

This "leave the driving to us" service will be made available if there are 50 subscribed riders for the coach-style buses. The average fare will be $8 per week.

How do you sign up for the Grumman commuter bus "service"? Just fill out the form on this page and mail it.

In other areas of transportation, Lashinsky is continuing to work with the Surburban Metropolitan Bus Authority on the re-routing of the Nassau bus service so that the buses stop outside the Grumman gates. Lashinsky advises that employees can get to Bethpage via bus from Freeport, Great Neck, Westbury, Hempstead, Massapequa, Hicksville, Long Beach and other Nassau towns. Information on schedules and fares may be obtained by calling 626-3000. But if you are interested in taking a Nassau County bus please fill out the form on this page and mail it so that Grumman might work out better schedule with the bus company to suit your needs.

Originally, when Gruman Aerospace began its transportation study back in September of 1973, said Tom Lahey, it was at the request of the Contracts Compliance Office from the Department of Defense. The company was asked to perform such a transportation study to further enhance the company's affirmative action program and inform those employees or potential employees of the various public transportation systems on the Island, and how they could be used to get to Bethpage.

The energy crunch speeded up matters.

See big assist for firefighters in electronic fire hose nozzle

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Included in Grumman's new device, called a Nozzle Pump Operator, are a rotating collar that fits behind the fire hoose nozzle and sends electronic signals to a device on the pumper, which regulates water flow; a pneumatic governor that operates off the truck's air brakes; a flow control, adjustable to 320 gallons of water per minute for each hose; and a control and display that sounds alarms should system problems develop.

Among the many features of the NPO system are:

- Flow control at n o z z l e — the nozzleman, in direct control, stops, starts, or adjusts his own water supply from the truck
- Independent operation — e a c h hose functions independently of all others, unaffected by shutdown, start up, or broken hoses
- Mobility and maneuverability — radio control, instead of voice and hand signals, eliminates any delay in delivery of changing demands
- Constant flow control — the system is repeatable and will deliver the same water flow each time it is requested . . . at all times

Advanced Development engineers George Nelson, Paul Kovach, and Joel Bernstein worked on the design of the system . . . Prototype Electronics in Plant 35 designed and built the transmitter and receiver . . . and the Production Support group in Plant 5 installed the entire system on a New York City Fire Department truck that was loaned to Grumman as a prototype test bed.

What lies ahead? First, Grumman will begin an extensive test and demonstration program for the system—patents are pending, by the way. When that is completed, marketing will begin in earnest. Eventually, Grumman expects to subcontract fabrication of detail components, but will assemble these smaller units into larger elements of the system for eventual installation on fire vehicles.

And for those who question the value of space technology? Perhaps an electronically controlled fire-hose nozzle isn't the most glamorous application imaginable, but it could certainly prove to be a lifesaver.

plane GRUMMAN news

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OBITUARIES

GEORGE H. BOYCE of Calverton Warehouses, Plant 6, died December 19 at the age of 52. He had been with the Company since 1945 and lived at 60 Country Club Rd., Bellport.

LOUIS MILLER of Prod. Release and Analysis, Plant 2, died December 15 at the age of 55. He had been with the company since 1944 and lived at 25 Thorne Ave., Hempstead.

JAMES M. SIM of Steel Parts Assembly, Plant 2, died December 19 at the age of 60. He had been with Grumman Aerospace since 1966 and lived at 3635 Mallard Rd., Levittown.

JOSEPH J. VORMITTAG of Dispatching, Plant 24, died December 27 at 61 years of age. He joined Grumman in 1938 and lived at 700 Fulton St., Farmingdale.

KATHRYN M. HEFFNER of Avionics Assembly, Plant 5, was 53 years of age at her death on January 2. She had been with Grumman Aerospace a total of three years and lived at 152 E. Pulaski Rd., Huntington Station.

FREDERICK KELLER JR. of Plant 4, Grumman Ecosystems, died January 6 at the age of 55. He had been with the company over seven years and lived at Athens Court, East Northport.

BUS SERVICE

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Traffic Dept.
Plt. 17 Dept. 176

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ESO
Plant 2

Navy employs Hawkeye trainer to sharpen skills of flight crews

The E-2C Cockpit Procedures Trainer (CPT) recently passed the Navy Acceptance Test and was shipped to the Naval Training Center at Norfolk, Virginia, on December 19.

The purpose of the CPT is to train Navy pilots and co-pilots in normal and emergency procedures for the E-2C aircraft without setting foot inside an actual E-2C, and for veteran pilots to maintain their proficiency. Hydrosystems, Inc., of Farmingdale was subcontracted by Grumman Aerospace to design and build the trainer. Grumman program manager of the CPT, Ray Frost, and project engineer, Fred Hartman, monitored the operation.

The trainer consists primarily of an instructor's console and trainee's cockpit, equipped with a tele-typewriter, and a Honeywell computer.

The instructor directs the entire training program from his control console where he can set up simulated flight conditions and monitor the trainee's actions. A CRT display screen is used to display the normal and emergency procedures the trainees must follow, and also displays cockpit instrument readings. As each step of a procedure is accomplished by the student, a slash (/) appears next to the completed step.

During the entire training session, the instructor can insert various malfunctions in the cockpit equipment to train the students in emergency procedures. He also has the option to override instrument readings generated by the computer to illustrate instrument failures or for any other instructional purposes, and he can simulate failure of individual circuit breakers through the console.

The trainee cockpit is identical to the operational E-2C aircraft. The cockpit section was obtained from the E-2 fatigue model.

Cockpit controls were modified to incorporate loading devices which provide the pilot trainees with a realistic feel, simulating forces encountered in the aircraft under normal and emergency conditions.

Grumman E-2C pilot, Al Hendershot, assisted in the engineering development and evaluation of the cockpit trainer.

Inspection team

From November 12 through 21, a Navy inspection crew consisting of Lt. Bud Kraft, from the RVAW-120 squadron, acting as acceptance pilot; Pete Engel, project engineer at the Naval Training Equipment Center, TDCS E. Remington, and TDC C. Noto, both assigned to maintaining the CPT, ran through the various Acceptance Test Procedures at Hydrosystems, Inc.

During the checkout, Cdr. Thomas P. McClenahan, Commanding Officer of RVAW-120, and Lt. Cdr. Kenneth Petroski, Wing Operations Officer, stopped by to get a close look at the new E-2C trainer. Cdr. McClenahan, besides being impressed with the broad capabilities of the trainer, said Hartman, commented that the cockpit trainer is also an excellent training tool for plane captains and for testing out new NATOPS (Naval Air Training and Operating Procedures Standardization) for the E-2C.

The cockpit procedures trainer arrived at the Norfolk training center before the holidays, and will be operational early in 1974.

About the ads . . .

Sorry, folks, but there are no ads contained in this issue of Plane News. Within the next week or so, though, there will be a special ad supplement which will be delivered through Employee Service Offices. Look for it.

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

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Silver stars. Grumman Board Chairman Clint Towl got an assist from Shirley Reiss during presentation of Accutron watches to nearly 400 persons who attained silver anniversary status at Grumman during 1973. Here, Towl greets Dick Stevens while Dave Stone is next to receive his 25-year commemoration. At right, Walt Wilk sets things—and tradition—in motion by cutting first piece of anniversary cake at the luncheon, attended by several thousand on December 18. (Photos by Fred Annette)

Buy Bonds . . . and 'save' more

You'll be getting a bigger return on your investment in U.S. Savings Bonds in the coming year, according to a retcent announcement by the Treasury Department. The interest rate offered on Savinsg Bonds has been increased from 5½% to 6%, and the maturity period on E bonds has been reduced from 5 years 10 months to 5 years.

The increase, which became effective December 1, 1973, will also mean an improvement on all outstanding Bonds. They will now earn an extra ½% for each semi-annual interest period beginning on or after that date.

In case you're interested, there are an estimated 23 million American families who own savings bonds, with a current value of more than $60 billion.

Really good show . . .

When the red button on a Xerox machines flashes "Call Key Operator," you may be out of business for quite awhile . . . but at Plant 58 in Sterling, Va., according to facility manager John Otterstedt, there's very little time lost due to malfunctions. That's true, he said, because Donnie Harper of Quality Control and Jenny Elder of Accounting show exceptional willingness to resolve key operator problems. Because of that, Donnie and Jennie were honored recently by Xerox Corporation with a certificate of recognition. Otterstedt believes the two have really earned the awards for outstanding performance. As John puts it: Good show!

More on EF-111 . . .

(Continued from page 1)

actual hardware—there would be two prototypes — to prove conclusively that the EF-111A was an effective electronic counter-measures system.

Following that, the Air Force might announce a go-ahead on the final phase, III, a long-range program in which 40 or more existing F-111s could be modified to become electronic countermeasures aircraft.

Commenting on the award, Grumman Aerospace President Joe Gavin said that Grumman was "delighted with the opportunity to work with the Air Force," and he also named Vice President Bob Miller, director of Electronic Warfare Programs, and Tom Street to head the design study work which will be performed at Plant 34.